

# SAFETY, SEISMIC SAFETY, and NOISE ELEMENTS

INSTITUTE OF GOVERNMENTAL  
ANALYSTS AND POLICY INSTITUTE  
APR 27 1983  
UNIVERSITY OF CALIFORNIA

• ON PROTECTING THE  
HEALTH AND SAFETY OF  
OUR CITIZENS...



UNIT 3  
OF THE  
CARSON GENERAL PLAN

1981



CITY OF CARSON

CALIFORNIA

---

SAFETY, SEISMIC SAFETY,

AND NOISE ELEMENTS

OF THE

GENERAL PLAN

---

Prepared by the

COMMUNITY DEVELOPMENT DEPARTMENT

PLANNING DIVISION

Revised

December 11, 1981



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Planning Commission

and

City Council Actions

The Planning Commission, at their October 27, 1981 meeting recommended certain amendments to the General Plan (Phase II) as set forth in Resolution Nos. 81-596 through 81-613.

The City Council at their December 11, 1981 meeting adopted Resolution No. 81-253 which amended the General Plan as outlined in these documents.



## INTRODUCTION

On protecting the health and safety of our citizens...

There are many areas of our lives in which local government must take steps to protect the health and safety of its citizens. The most obvious areas are matters of life and personal safety which are protected by police and fire services and building code enforcement.

Less obvious areas are protection from flooding, water contamination, earthquakes, soil erosion, subsidence, noise pollution and air pollution. Some of these phenomena are forces which cannot be contained completely since they are inevitable by-products of modern technology. Local governments must take steps to provide for the safety of its residents in the event that such phenomena threaten life, health and personal property.

The Safety, Seismic Safety, and Noise Elements of the comprehensive General Plan are directed to these ends. The Safety Element is the most far-reaching, covering police, fire and emergency preparedness services. It also identifies geologic and flood hazards in Carson and the vicinity. Goals and programs for protection of the public in each of these areas are set forth.

The Seismic Safety Element identifies earthquake-prone locations and fault lines in the area. The history of earthquake activity and ground movement is discussed. The over-riding goal of the Seismic Safety Element is to implement procedures and legislation to reduce geologic hazards to an acceptable level of risk.

Noise control is a relatively recent component of general plans because research has shown that the din typical of urban areas and the sporadic, but repetitious loud noises of aircraft, industry and construction have deleterious effects on hearing and mental health. The Noise Element identifies the noisy and quiet zones of Carson and sets forth criteria for acceptable noise levels in each. Existing or potential problem areas of noise intrusion into residential areas are identified as part of the overall noise control plan.



# SAFETY ELEMENT



## SAFETY ELEMENT

### INTRODUCTION

Public safety includes protection from fires, geologic hazards, flooding and earthquakes; development of peak load water supply requirements, evacuation routes and minimum road widths. The Safety Element is aimed at reducing loss of life, injuries and property damage. It also deals with structural fires, hazardous wastes and toxic materials. Inclusion of the Safety Element in comprehensive plans became a state requirement in 1971, following major wildland fires in the fall of 1970.

The Safety Element is an assessment of major hazards to the City, not a contingency plan or civil defense plan. It analyzes the causes and potentials of safety hazards and suggests ways to alleviate or lessen these risks. The Safety Element includes sections on fire, explosion, geologic, crime and flood hazards. The Seismic Safety Element, covering earthquakes, is a companion document. Safety considerations influence other elements of the comprehensive plan, including the Land Use, Circulation, Open Space, Conservation, and Recreation Elements.

The Safety Element was originally approved by the City Council with adoption of Resolution No. 76-156 on August 2, 1976. The updated information contained in this new document is intended to supplement the original material and correct the errors in the original document. It should be noted, that with the exception of the updated and revised information, the original element is still valid as background information and documentation.

The Safety Element assesses the following hazards by category, evaluates current capability of meeting emergency requirements and identifies issues needing further attention.

### Fire Hazards and Preparedness

Fire service is provided to Carson under contract with the Los Angeles County Fire Department. There are four fire stations in the City and two on the outskirts. A mutual aid program, operating through the Los Angeles City Fire Department, provides that nearby fire-fighting units will assist one another.

Carson's peak load water supply is adequate to provide sufficient fire flow while maintaining domestic water supply and an adequate reserve. A few of the City's older areas are served



by undersized mains and hydrants. These must be replaced. The Dominguez Water Company is planning a replacement program for their service area as needed.

The Fire Department upgrades infrastructure facilities under specific conditions for new subdivisions and conditional use permits for developments. Fire hazards from deteriorating buildings, unkempt and overgrown vacant land, refineries and chemical manufacturers are monitored by the Fire Department by routine inspections.

The presence of industry means that some flammable and explosive materials are shipped to and from Carson regularly by truck and train. Transportation and handling procedures for these materials should be regularly reviewed to ensure safety.



F.S. No. 95



CITY OF CARSON

FIRE STATION LOCATIONS

F.S.=Fire Station

F.S. No. 105

REV. 8-81



## FIRE STATION LOCATIONS

The following list of fire stations designates all Los Angeles County fire protection facilities in or adjacent to the City of Carson which serve the community in time of emergency:

FIRE STATION NO. 10 Division Headquarters 1860 E. Del Amo Boulevard Carson, CA 90746	Division Commander 1 Engine (Pumper) Company 1 Foam Unit 1 Reserve Paramedic Rescue Squad
FIRE STATION NO. 36 Battalion Headquarters 127 W. 223rd Street Carson, CA 90745	Battalion Chief 2 Engine (Pumper) Companies 1 Paramedic Rescue Squad
FIRE STATION NO. 95 137 W. Redondo Beach Boulevard Gardena, CA 90247	1 Engine (Pumper) Company
FIRE STATION NO. 105 18915 S. Santa Fe Avenue Compton, CA 90221	1 Engine (Pumper) Company 1 Deluge Unit 2 Reserve Engines (Pumpers)
FIRE STATION NO. 116 755 E. Victoria Street Carson, CA 90746	1 Engine (Pumper) Company 1 Truck (Ladder) Company 1 Paramedic Rescue Squad
FIRE STATION NO. 127 2049 E. 223rd Street Long Beach, CA 90810	1 Engine (Pumper) Company 1 Truck (Snorkel) Company 1 Utility Unit 1 Foam Nozzle

Source: Captain Belliveau  
Fire Station No. 36

REV. 8-81



## Geologic Hazards

In addition to earthquakes discussed in the Seismic Safety Element, there are some non-seismic hazards in Carson. Since the terrain of the City is relatively flat, landslide and erosion are not major problems. Minor slope erosion does occur during heavy or constant rain. Grading requirements have been adopted to minimize this effect.

Some areas of the City are sites of previous organic landfill activity and may be subject to decomposition, production of landfill gases and differential settling. Recent State Department of Health investigations of certain Class II sites revealed, however, that they may have been used in the past for the permitted or unauthorized dumping of significant amounts of hazardous chemical substances. Final determination by the State Department of Health Services and designation of any of these Class II sites as hazardous waste property will only be made after a duly noticed administrative hearing.

The City currently has 17 inactive sanitary landfills. Although none of these landfills currently accepts materials which decompose chemically or biologically, some of these sites may produce landfill gases and have problems of differential or unstable settling. Other sites will probably not produce landfill gases since they contain non-water soluble, non-decomposable inert solids. All of the sites could be subject to differential or unstable settling. Any future development proposed on or near these sites should be carefully studied, and a landfill gas control plan and monitoring system may be required for safety. There are three additional landfill sites located just beyond the City's boundaries as shown on the Sanitary Landfill Map.

Differential settling is noted as a potential hazard in the various landfills in the City. The majority of these landfills are in the area of the old slough, as delineated on the 1975 Safety Element Geologic Map. Future work should determine if organic deposits underlie any unfilled slough areas and if such areas are prone to settlement.

## Flood Hazards

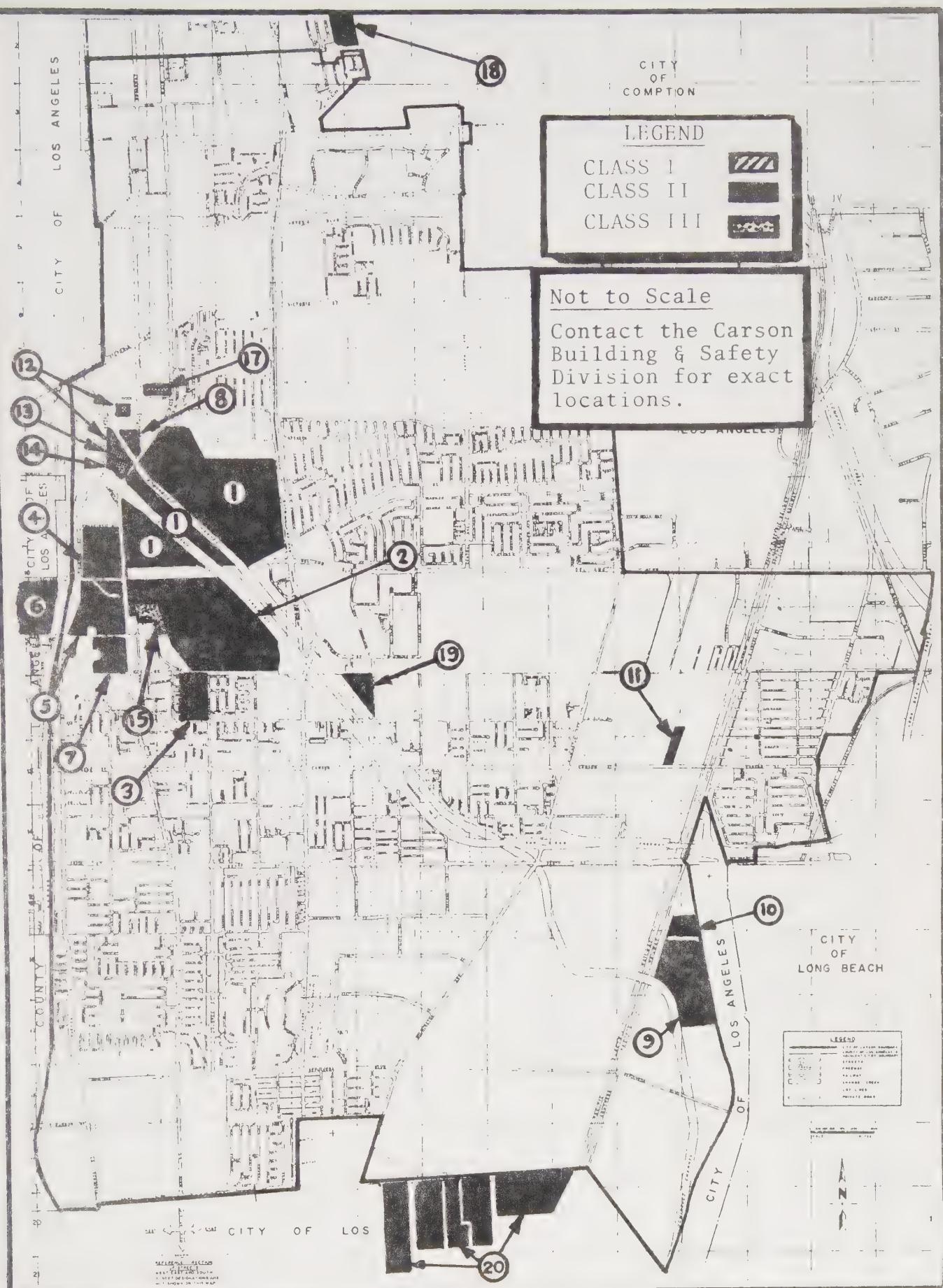
Because of its low elevation, isolated areas of Carson are subject to flooding during winter rains. There are few intersections and major streets and highways which are subject to flooding during high intensity rainstorms. Some automobile



accidents are flood-related. Specific sites with inadequate drainage have been identified. Poor drainage from low-lying land, with standing pools of stagnant water harboring mosquitoes and other insect larvae, can result in related health hazards for the community. New developments require that adequate drainage systems be provided. In certain sections of the City, drains have been constructed to eliminate many of the standing water and run-off problems.

In many areas, the City is adequately served by drains and is relatively dry. The Los Angeles County Flood Control District is responsible for flood prevention. It has identified problem areas in Carson and implemented a correction program.







## LIST OF SANITARY LANDFILLS

Sanitary landfill sites are designated by the Sanitation Division of the Department of the County Engineer.

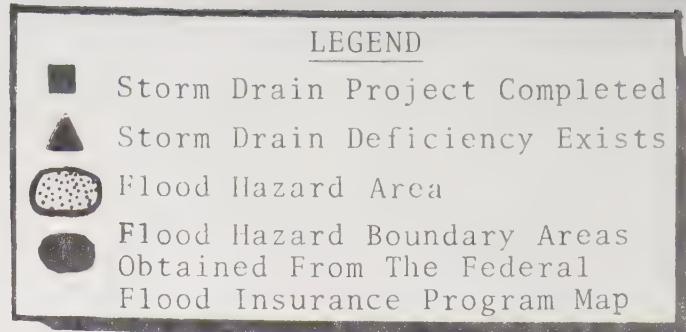
### LEGEND

Class I = For toxic or hazardous substances  
Class II = For chemically or biologically decomposable substances  
Class III = For non-water soluble, non-decomposable inert solids

	<u>NAME</u>	<u>CLASS</u>
1)	B. K. K.	II
2)	Cal Compact	II
3)	Martin Adams	II
4)	Southwest Conservation, Inc.	II
5)	Gardena Valley No. 1 and 2	II
6)	Gardena Valley No. 4	II
7)	Gardena Valley No. 5	II
8)	Broadway - Main	II
9)	Alameda Street	II
10)	Hardwicks	II
11)	California by Products	II
12)	Southwest Steel No. 1	III
13)	Sanitation Districts	III
14)	Shell Chemical	III
15)	Werdins	III
16)	National Supply Co. (Outside of West City Boundary)	III
17)	Southwest Steel No. 2	III
18)	Compton Reclamation Area	II
19)	Gardena Valley No. 6	II
20)	Miscellaneous Dump Sites Abutting City Boundaries	II

REV. 8-81





**CITY OF CARSON**  
**FLOOD HAZARD AREAS**

DOMINGUEZ WATER CO.  
STORAGE TANKS  
14.0 Million Gallons



**Information Source:**

Not to Scale

Contact Los  
Angeles County  
Flood Control  
District for  
exact locations.

- Carson Building and Safety Division
- Carson Public Works Department
- Los Angeles County Flood Control District
- Department of The County Engineer, Design Division



### Crime Hazards

Police protection and crime prevention in Carson is provided under contract by the Los Angeles County Sheriff's Department. A county sheriff's station is located in Carson, and effective liaison is maintained by the City's Director of Community Safety.

Data on crime are maintained by census tract and reporting districts to enable the City and the Sheriff's Department to monitor incidents and deploy personnel. There are few areas of Carson with high crime rates, and these are densely developed areas of mixed residential and commercial/industrial land uses. The most common crime is burglary.

A hindrance to police surveillance in certain locations is the absence of an effective street grid for automobile access. Concepts of "defensible space" could be applied to these and each new large development to provide for better patrolling. A sense of ownership, and thus control of activities in the proximity of one's unit, is weakened by the fact that apartment developments are shared by other residents. Apartment dwellers seldom have a private or semi-private "defensible space" outside which they can feel is their property. When most outside areas are developed as common areas, the tenants develop apathetic attitudes toward the use of these areas. Many times, therefore, vandalism occurs without it being readily noticed.

### Safety Policies and Programs

Carson's safety policies are the set of goals and objectives which relate to monitoring hazards, devising techniques for mitigating their effects and maintaining capability to respond in a timely and effective fashion to all types of emergencies. Not all of Carson's safety policies are contained in the Safety Element. Some are found in the Seismic Safety Element. Others fall under air quality, zoning, building regulation and traffic and circulation planning. Highlighted here are policies expressly related to fire, geologic, flood and crime hazards.

### Fire Safety

The City has established the following goals and programs:



## GOALS AND PROGRAMS

1. Provide for the protection of life and property from both natural and man-made hazards within the community.
2. Provide for the protection of public order through effective fire protection and rescue programs.
3. Work closely with other city, county, state and federal departments and the citizens of the community to develop and implement emergency communications and disaster preparedness programs to help ensure the overall health and safety of all those who reside and/or work within the City of Carson.
4. Prepare and present to the residents, schools, businesses and industries up-to-date educational programs on fire safety and rescue practices.
5. Maintain proper fire prevention, pre-fire planning and inspections of all commercial, public and industrial occupancies within the City.
6. Maintain the highest degree of proficiency in the fields of protection and rescue practices by providing continuous updated training and educational programs to members of the Fire Department.

### Safety from Geologic Hazards

In addition to the policies and programs set forth in the Seismic Safety Element, the City has adopted the following goals and programs for geologic safety:

## GOALS AND PROGRAMS

1. Implement procedures and legislation to reduce geologic hazards to an acceptable level of risk.
2. Promote local, regional and state-wide programs, research and legislation which will provide scientific identification and practical protection from geologic activity.
3. Maintain and improve, whenever necessary, present zoning and subdivision regulations requiring geologic approval prior to project implementation.



4. Ensure protection from geologic hazards in compliance with Division of Mines and Geology standards and such other standards as adopted by ordinance or resolution.
5. Collect data relating to local geology and ensure its availability and retrieval.
6. Notify property owners and/or tenants of known geologic hazards relating to those structures that could be vulnerable during an earthquake.
7. Require adherence to the Building Code standards to ensure protection from geologic hazards.

### Flood Safety

The Los Angeles County Flood Control District has prime responsibility for regional control and maintenance of major storm drain channels, feeder channels and private drains. In cooperation with the City, it has implemented a time-phased program for correction of deficiencies.

### GOALS AND PROGRAMS

1. The City maintains an emergency plan in case of flooding. The City's Public Works Department is responsible for ensuring that property drainage improvements are provided in the street and highway system as vacant or underutilized areas are developed or redeveloped. The Department is also responsible for maintaining the City's streets during periods of inundation.

### Crime Protection and Prevention

The City of Carson will continue to contract with the Los Angeles County Sheriff's Department for crime control services. It will maintain its liaison function through the Director of Community Safety. Some important goals and programs are:



## GOALS AND PROGRAMS

1. Preventive patrols.
2. Apprehension of offenders.
3. General service in a fair, honest, prompt and courteous manner to the satisfaction of the citizens.
4. Crime and delinquency prevention programs.
5. Crime prevention through environmental design, such as "defensible space" design concepts.
6. Effective liaison and coordination of public and private efforts to enhance community safety.
7. Encouraging adequate private security forces in mobile home parks and other non-public areas which have need for additional private security protection.

### Emergency Response

Carson's Emergency Operations Plan provides for mobilization of public and private resources to meet the needs of any emergency or disaster. Carson's Office of Emergency Services will co-ordinate City services in the event of an emergency to ensure:

- Fire suppression, rescue and paramedic service.
- Traffic control and evacuation of endangered areas.
- Emergency relocation sites.
- Public works facilities and public utilities.
- Communications.
- Public information and emergency directives.
- Radiological monitoring.

Carson participates in the California master mutual aid agreement among local governments and will promote inter-departmental and inter-community coordination and cooperation.



## EMERGENCY AND EVACUATION ROUTES

A priority system has been established for emergency routes. The priorities apply to the routes used in evacuation of residents from an endangered or damaged area and to the repairing or clearing of routes damaged or obstructed by a disastrous occurrence.

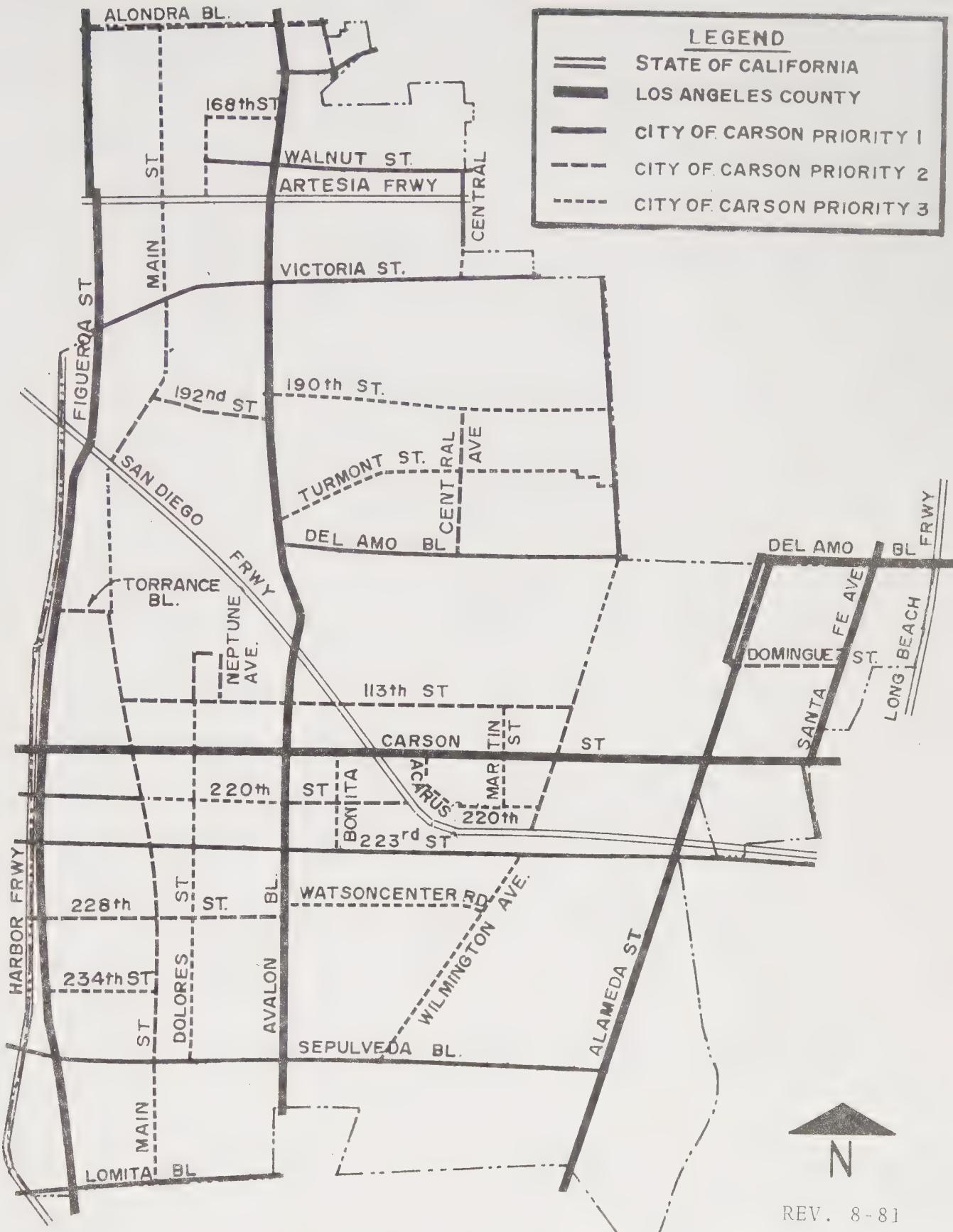
The California Department of Transportation takes primary responsibility for freeways and designated freeway alternate routes. Within Los Angeles County, the Metropolitan Transportation Engineer Board (M.T.E.B.) has established a county-wide disaster route priority plan. The City of Carson, working from the Caltrans and M.T.E.B. plans, has developed a comprehensive City-wide system of disaster routes. The City's priority routing is based on a three level scale, with major arterials being the first priority. This priority routing system is designed to provide egress from all residential areas to major evacuation routes as expeditiously as possible, and may, of course, be adjusted as necessary to accommodate the parameters of any given disaster situation.

While the physical situation of the Los Angeles basin precludes efficient mass evacuation of the entire metropolitan area, relocation of portions of the population from highly damaged or dangerous areas to those less affected is a distinct possibility. It is with this type of relocation in mind that the disaster route priority system was developed.

## SAFETY PLAN

The Safety Plan is the series of steps the City is taking to carry out its goals and politics. In the case of most hazards, routine monitoring of existing hazards, combined with adoption of new safety techniques or technologies, are the principal methods of disaster prevention. Maintaining an effective disaster response system enables the City to minimize loss when disaster occurs.





**CITY OF CARSON  
DISASTER ROUTE MAINTENANCE  
PRIORITY PLAN**

REV. 8-81



## Fire Safety

First priority program:

- Abatement of significant fire hazardous building uses which do not meet Los Angeles County Fire Department standards.
- Replacement of inadequate mains and hydrants.
- Coordination with truck and railroad companies to minimize hazardous transportation practices.
- Periodic inspection by the Fire Department of business operations with higher risks for potential explosions, such as oil refineries, petroleum tank farms, chemical manufacturing firms, etc.

Second priority program:

- Expansion of public education programs.

## Geologic Safety

First priority program:

- Continue coordination with the County and State Geology Divisions to ensure the City has the latest information regarding geologic hazards in the City.
- Establishment of practical programs to reduce the effects of significant geologic hazards identified by research.

Second priority program:

- Periodic review of the Building Code and Zoning Ordinance relating to new geologic information and new construction technology.
- Expansion of requirement for geologic study prior to granting a construction permit, if considered necessary by the City Engineer.



## Flood Safety

First priority program:

- Expeditious completion of currently planned storm drains and flood control channels.

Second priority program:

- Incorporation of adequate flood control measures into all future development projects.

## Crime Safety

First priority program:

- Abatement of current crime conducive conditions.
- Careful review of proposed subdivisions and construction projects to eliminate crime conducive conditions.

Second priority program:

- Determination of optimum surveillance of City by law enforcement units.
- Implementation of updated Building Code provisions related to building security.

## Emergency Response

First priority program:

- Establishment of an adequate City communications system.
- Adoption of an emergency preparedness capability via an emergency operation center, field command unit and related field support activities.



## Summary

Carson's hazard profile is relatively low. The area is not subject to wildland fires and presently not subject to serious flooding. However, in the past, the Carson area was subject to flooding; flood control drainage systems have since been constructed to help control the problems. The possibility of earthquakes must be recognized, though, since the City is located along the westerly boundary of the Newport-Inglewood fault zone.

Faults within the City include the active Cherry Hill and Avalon-Compton faults. Both are considered part of the active Newport-Inglewood fault system. The original Safety Element, adopted in 1976, contains a detailed geologic map, dated November, 1975, which designates the location of the above-mentioned fault systems and delineates soil types in various areas of the City.

As in any urban area, crime is a problem; however, the Los Angeles County Sheriff's Station reports that the crime level has decreased in Carson in the past several years. The density of urban development presents distinct fire hazards and also produces major flooding problems when heavy rains occur. The presence of heavy industry creates the potential for industrial fires or explosions.

Similar hazards exist in and near some of the City's sanitary landfill sites because, although the sites are closed, existing materials in some sites continue to produce landfill gases.

The Safety Element assesses various hazards, evaluates current capability of meeting emergency situations and identifies issues needing further attention.

The General Plan was originally approved by the City Council on December 6, 1971. This document contained a "Flood Areas Map" which was later superceded by the "Flood Hazard Areas Map" approved as part of the original Safety Element adopted on August 2, 1976.



# SEISMIC SAFETY ELEMENT



## SEISMIC SAFETY ELEMENT

### INTRODUCTION

The Seismic Safety Element is designed to reduce loss and injuries that may result from earthquakes and other geologic events. Casualties and death may be reduced by effective warning and evacuation systems. Certain preventive measures can be taken in building construction and location to minimize loss of property as well as injuries and deaths.

This Element serves primarily to identify seismic hazards and their location in order that they may be taken into account in planning future development. The Building Code and the City's civil defense program are the principal mechanisms for protection against and relief from the danger of earthquakes and related events.

The Seismic Safety Element was originally approved by the City Council with the adoption of Resolution No. 73-031 on February 5, 1973. The updated information contained in this new document is intended to supplement the original material and correct the errors in the original document. It should be noted that, with the exception of the updated and revised information, the original element is still valid as background information and documentation.

### BACKGROUND

All of Southern California is considered an area where major destructive earthquakes may occur. The City of Carson is located on the western boundary of the Newport-Inglewood fault zone. This system has experienced periodic shock, most recently in the City of Inglewood in 1970. Some earthquakes have done considerable damage and have been rated quite high on the Richter scale.

The Alquist-Priolo Geologic Hazard Zones Act (California Public Resources Code) ensures that research is done to prepare special study zone maps delineating all active fault zones in the state of California and establishing a one-eighth mile wide construction zone on each side of the faults. To the extent consistent with the Act, all new construction within that area, except those structures specifically exempted, will require a geology report since research conducted by the Division of Mines and Geology has established a realistic necessity for



this requirement. There are two special study zones within the City as shown on the following map. These zones correspond to the Cherry Hill and Avalon-Compton fault zones discussed earlier. This Act became effective January 1, 1976. Even though certain faults, or fault segments, within the City of Carson are not within a special studies zone, a geologic report is recommended prior to construction of vital structures within one-eighth of a mile on each side of the fault.

The City of Carson also has an earthquake contingency plan included within the emergency operations plan. This plan will be reviewed and updated as necessary.

Carson and the entire South Bay area are regarded as one of the most severe shock areas in the Los Angeles basin. This finding was made by the seismological laboratory of the California Institute of Technology and is based on the fact that the area has an unstable sub-base of sandy soil. The effects of an earthquake in such soil produces a rolling motion which causes damage over widespread areas. The sandy base also hinders the detection of faults, posing obstacles to identification of extreme hazard areas. Some faults in the area have been detected, however, through oil drilling and water table studies.

Damage to buildings is a major earthquake hazard. Not all buildings are equally vulnerable to the effects of earthquakes. Research into design and construction has yielded new technology over the years to protect against seismic shock. Buildings constructed in Carson and other California cities must be built in conformance with standards for seismic loading contained in the building regulatory codes. The San Fernando earthquake of 1971 showed the need for further research and revision of the standards. Carson's code was revised accordingly, but many buildings already built by that time do not conform to newer standards.

Bridges and highways are also subject to damage from earthquakes. Five freeway overpasses collapsed in the vicinity of the epicenter during the 1971 earthquake. Other freeways were severely damaged as were portions of many highways. Also, it is important to note that rupture of water mains was widespread during the 1933 Long Beach earthquake. This should be considered in earthquake response planning.

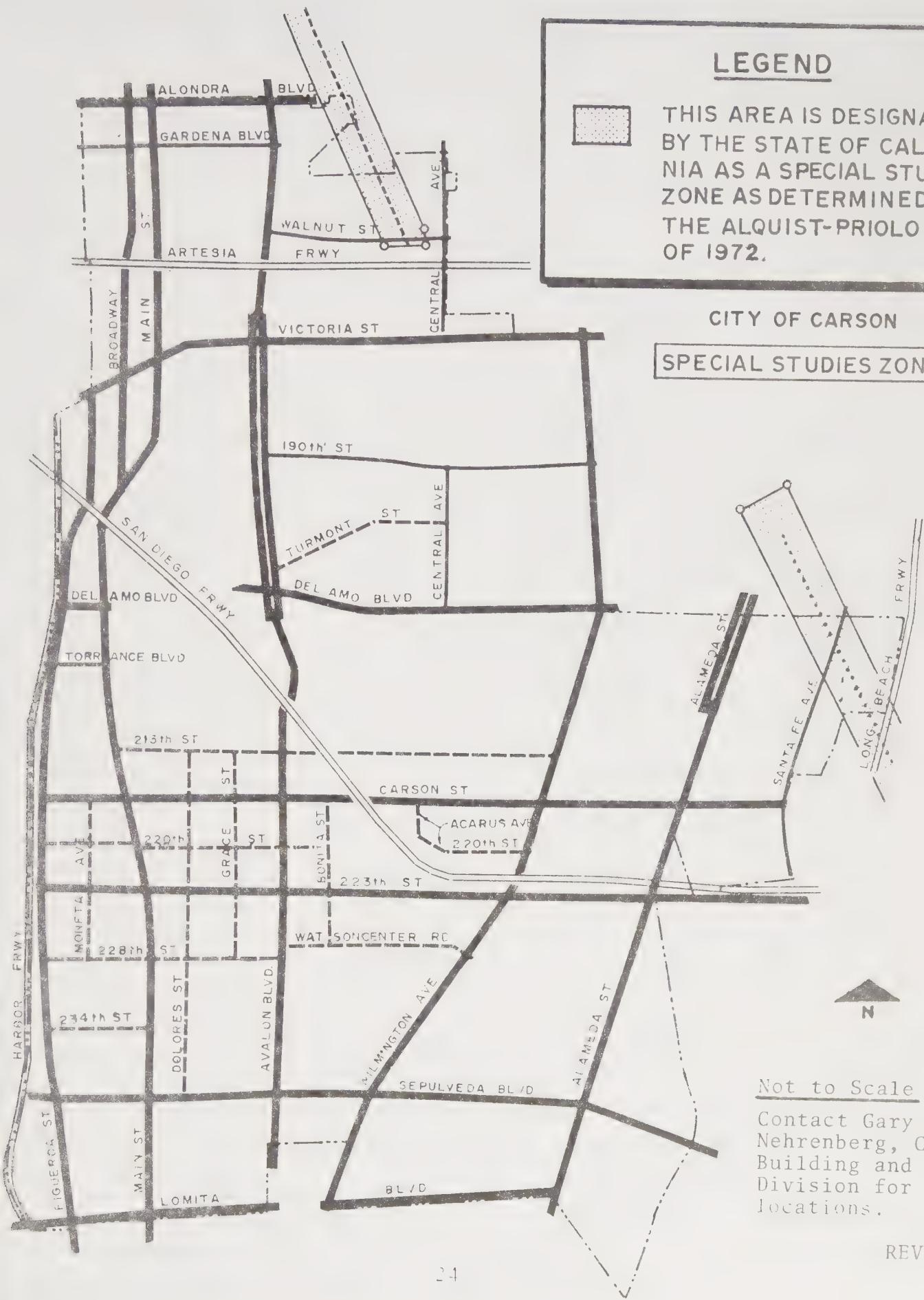


## LEGEND

THIS AREA IS DESIGNATED BY THE STATE OF CALIFORNIA AS A SPECIAL STUDY ZONE AS DETERMINED BY THE ALQUIST-PRILO ACT OF 1972.

## CITY OF CARSON

### SPECIAL STUDIES ZONES

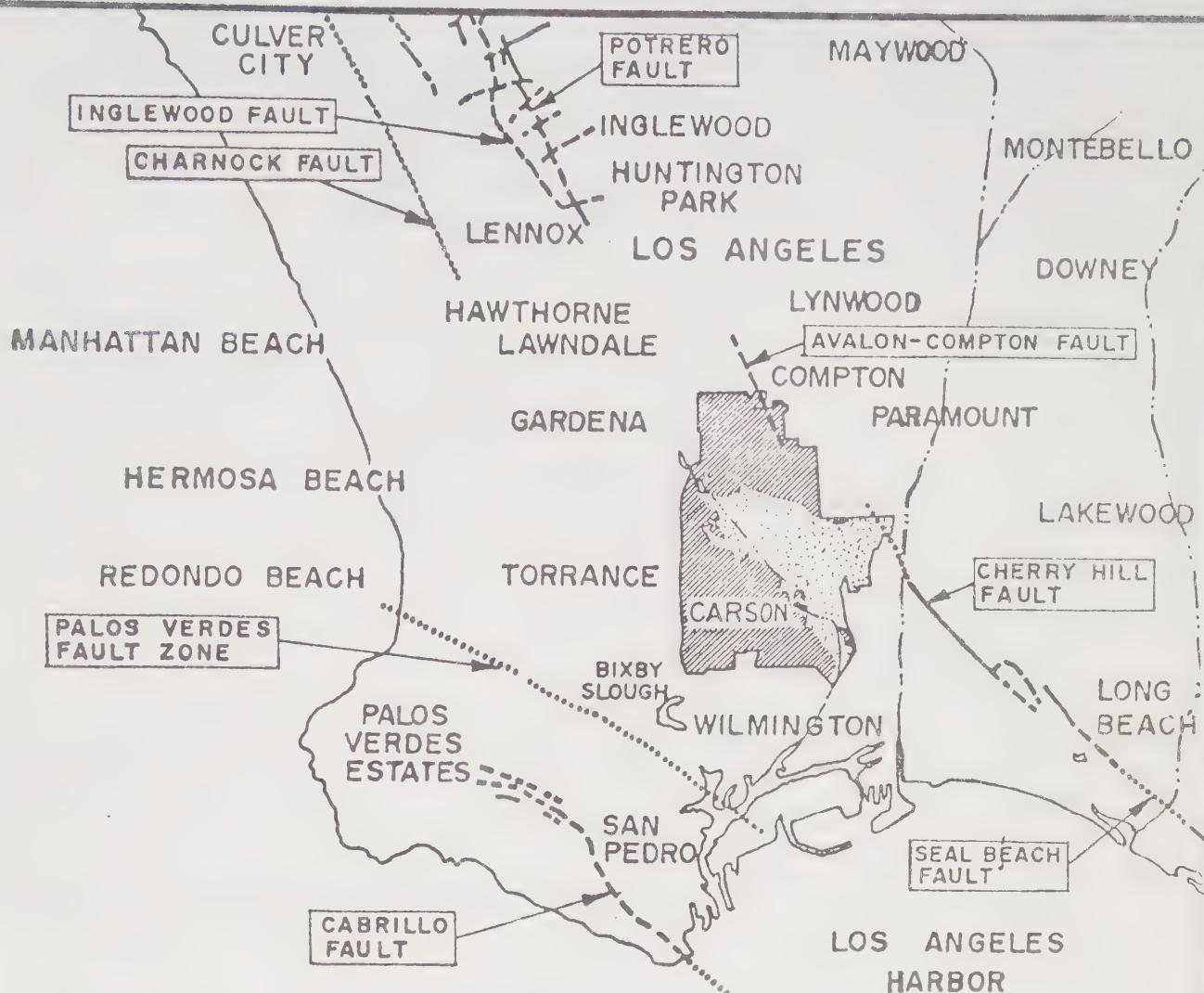


Not to Scale

Contact Gary Nehrenberg, Carson Building and Safety Division for exact locations.



# NEWPORT-INGLEWOOD FAULT ZONE



## CITY OF CARSON

### FAULT MAP

#### SOURCE:

California Division of Mines and Geology  
Geologic Map of California-Long Beach  
Sheet, 1962

#### LEGEND



(Qa1) ALLUVIUM



(Qf) QUATERNARY NONMARINE  
TERRACE DEPOSITS

PACIFIC  
OCEAN

## GEOLOGIC MAP of SOUTH BAY REGION

#### FAULTS

— GEOLOGIC FAULT

..... DOTTED WHERE CONCEALED

— DASHED WHERE APPROXIMATELY  
LOCATED

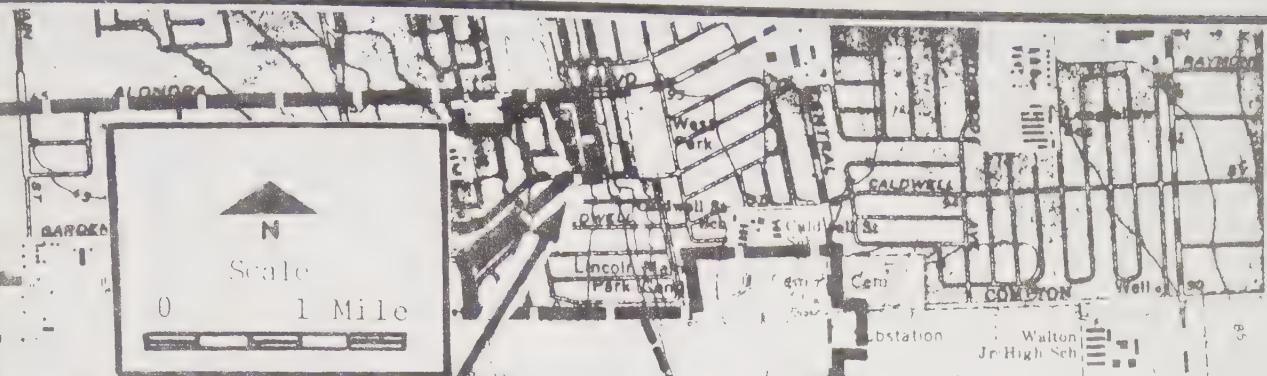
STATUE MILES  
5 0 5

CARSON PLANNING DIVISION REV. II-72





# AVALON-COMPTON FAULT



Avalon-Compton Fault

## Note

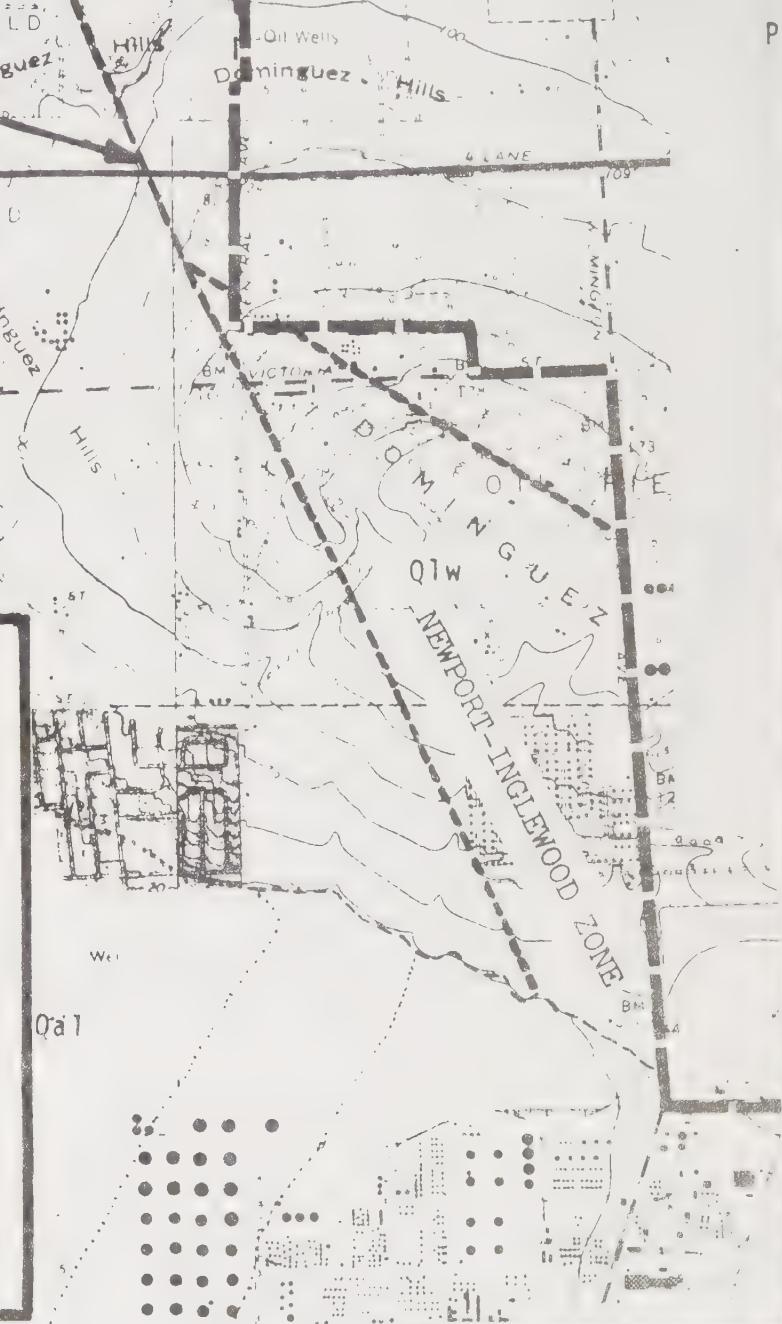
This is an excerpt from the original Geologic Map, dated November, 1975. The original map is on file at the City of Carson Community Development Department, Planning Division.

City of Carson  
(Northeasterly Section)

## SYMBOLS

- Contact, dashed where approximate, dotted where covered or where grading is inferred to have modified its position.
- Fault, dashed where inferred, dotted where concealed.
- City boundary.
- Boundary of former slough.

Note: Artificial fills have not been delineated.



CITY OF CARSON  
GEOLOGIC MAP

REV. 11-75

Prepared by the County of Los Angeles, Department of the County  
Engineer, Engineering Geology Section

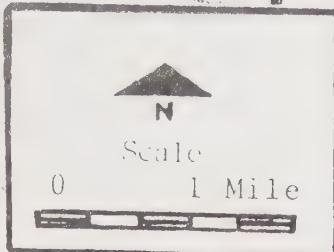


# CHERRY HILL FAULT

## Note

This is an excerpt from the original Geologic Map, dated November, 1975. The original map is on file at the City of Carson Community Development Department, Planning Division.

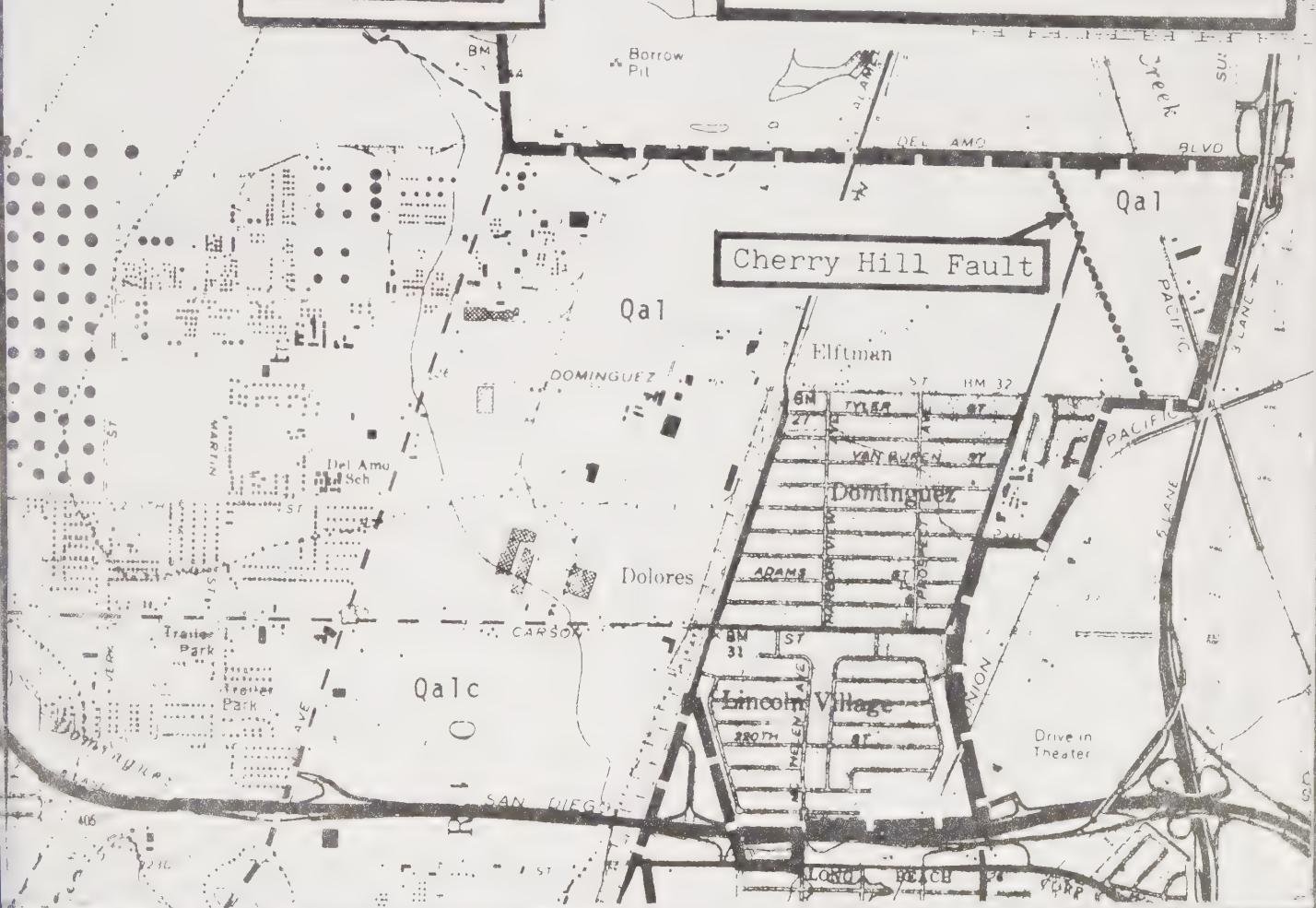
City of Carson  
(Central Westerly Section)



## SYMBOLS

- Contact, dashed where approximate, dotted where covered or where grading is inferred to have modified its position.
- Fault, dashed where inferred, dotted where concealed.
- City boundary.
- Boundary of former slough.

Note: Artificial fills have not been delineated.



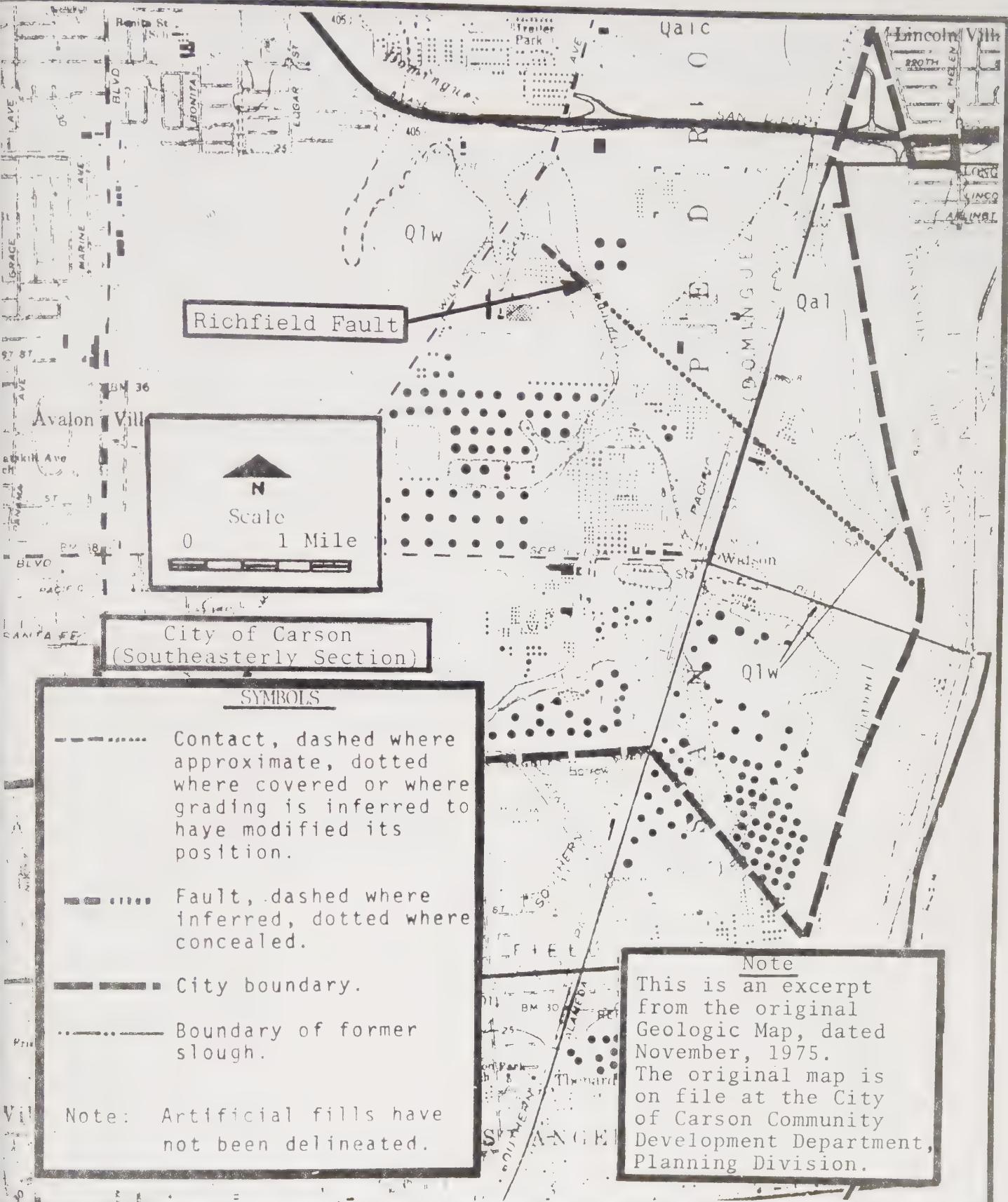
CITY OF CARSON  
GEOLOGIC MAP

REV. 11-75

Prepared by the County of Los Angeles, Department of the County  
Engineer, Engineering Geology Section



# RICHFIELD FAULT



CITY OF CARSON  
GEOLOGIC MAP

REV. 11-75

Prepared by the County of Los Angeles, Department of the County Engineer, Engineering Geology Section



## SHAKING

An earthquake with a magnitude of seven (7) on the Richter scale is the maximum credible earthquake in the Newport-Inglewood fault system. Due to the nature of soil conditions in the Carson area, the entire City could experience severe ground shaking, and significant structural and non-structural damage would result from such an event.

As an example of the possible serious effects of such an earthquake, the "Modified Mercalli Intensity Scale" (from the 1973 Urban Geology Master Plan) indicates that such a seismic event could cause cracks in wet ground and steep slopes, damage trees, and break underground pipes. Conspicuous cracks would appear in the ground. Most masonry and frame structures and their foundations would be destroyed, some well-built wooden structures and bridges would be destroyed and similar effects would be felt by other structures and people within the City of Carson.

## SUBSIDENCE

Subsidence, caused by fluid withdrawal, has not been a problem in the City of Carson. The Building and Safety Division reports that there have not been any reports of any structures being adversely affected by subsidence caused by fluid withdrawal. Such subsidence is normally spread over a larger area, rather than being differential in nature, and thus does not adversely affect structures.

Historical subsidence areas in the City of Carson, now under control as described in the original Safety Element, are shown on the "Areas of Differential Subsidence" map included in this document.

## LIQUEFACTION

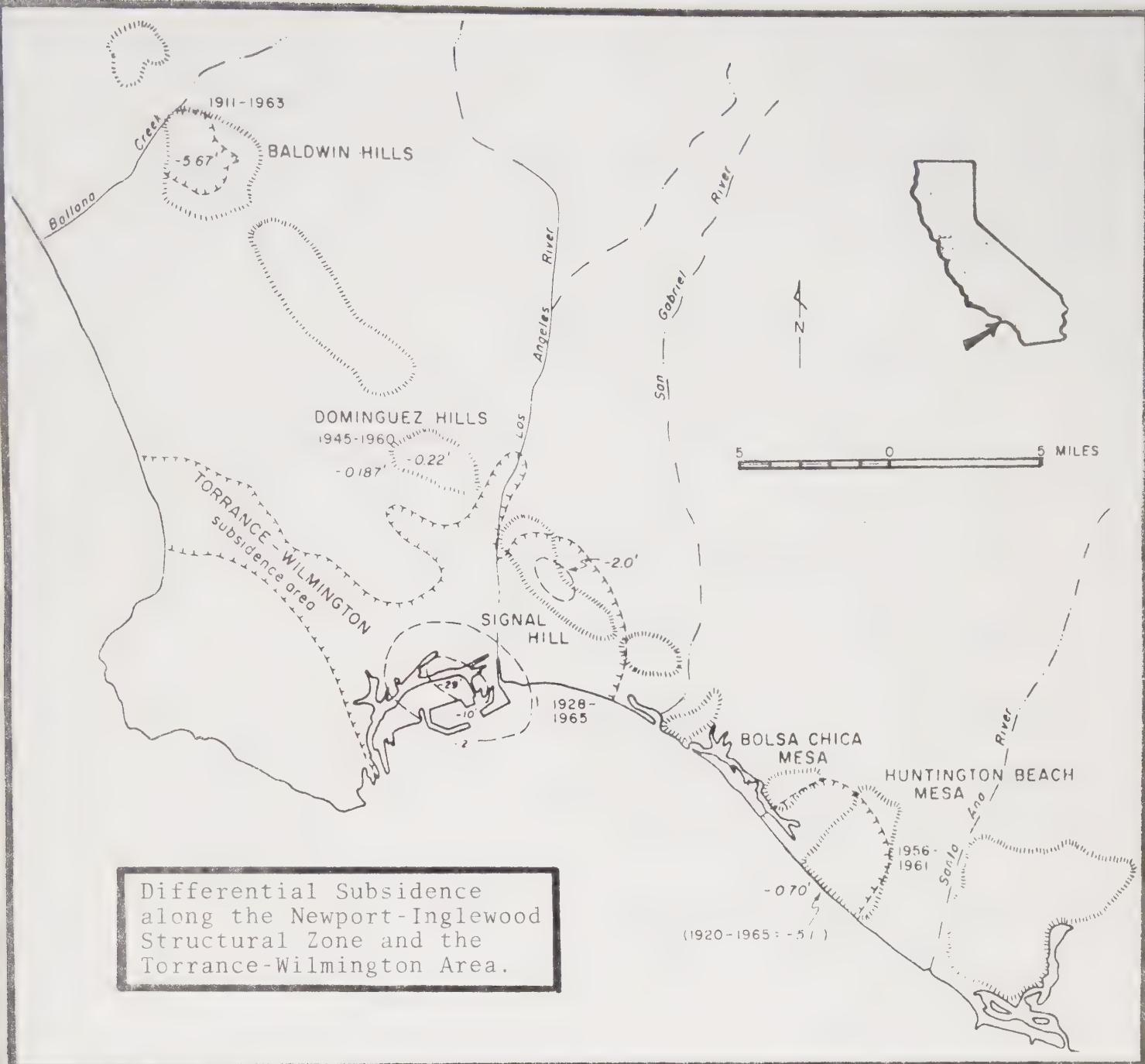
Liquefaction is a process by which water-saturated granular soils transform from a solid to a liquid state because of a sudden shock or strain. Basic conditions necessary for liquefaction to take place are soil conditions conducive to liquefaction, saturation of these materials by water and a source of shaking. The Newport-Inglewood fault zone is a potential source of ground stress, and liquefaction could occur in the area if the ground water table were high enough during an earthquake.



Due to existing soil conditions in the City of Carson, particularly in the alluvial and slough areas (delineated on the 1975 Safety Element Geologic Map), there is a possibility that liquefaction may have an effect on buildings or structures in the City in the event of an earthquake. However, the Department of the Los Angeles County Engineer, Geology Section, states that current information does not indicate that the water table has been recently high enough to create a potential for liquefaction. In some cases, however, the ground water could be located near the surface of the land due to local geologic conditions, and this circumstance could contribute to a liquefaction condition during a seismic event.



## Newport-Inglewood Structural Zone



REV. 1972

### AREAS OF DIFFERENTIAL SUBSIDENCE MAP

This map is an excerpt from the Special Report 114 titled "A Review of the Geology and Earthquake History of the Newport-Inglewood Structural Zone, Southern California, dated 1974." The map was prepared by the California Division of Mines and Geology, Los Angeles, California.



## SEISMIC SAFETY POLICY

The goals of the Seismic Safety Element, broadly stated, are to protect life and property against earthquakes through continued efforts, to identify hazardous areas, to apply all new building safety technology and to create an effective emergency and evacuation plan. The specific objectives and programs are:

### OBJECTIVES AND PROGRAMS

1. Reduce loss of life, injuries, property damage and other effects associated with future earthquakes.
2. Locate any existing surface and sub-surface faults for the purpose of preventing future building on hazardous sites.
3. Develop a realistic contingency plan to be operational should the area be affected by a future earthquake.
4. Locate any substandard structures vulnerable to earthquake damage and to set standards for an orderly abatement.
5. Inform the public of potential structural seismic hazards.
6. Develop an effective and safe land use policy in conjunction with the seismologic factors of earthquake hazards, including the development of separate standards for the following different uses: housing, commercial and industrial uses, and community and essential facilities.
7. Amend, if necessary, any affected Elements of the existing General Plan, Zoning Ordinance, Subdivision Ordinance, Building Code, redevelopment program and capital improvement program.
8. Update the Seismic Safety Plan as new knowledge, technology and data become available.



## SEISMIC SAFETY PLAN

Since earthquakes occur without warning, it is difficult to be prepared for them in advance. Residents of Southern California, therefore, must accept the fact that the risk of earthquakes exists. The principal measures that can be taken to protect people and property from earthquake damage fall in the category of building regulations and plans for emergency assistance and evacuation. Carson's Seismic Safety Plan centers around these two considerations.

To protect its residents against harm from earthquakes, the City will:

- Collect and maintain current data on high-hazard areas and alert owners of buildings on such sites.
- Maintain awareness of building research and technology and revise the building codes to reflect new developments.
- Ensure that all public buildings meet the highest standards of seismic safety.
- Encourage and work with all state, regional and county agencies to accumulate more data on earthquake hazard.
- Maintain an up-to-date emergency services program which includes a disaster coordinator for the City.
- Maintain emergency-preparedness through contract with Los Angeles County for fire, rescue and police service.
- Coordinate with local public agencies and voluntary assistance organizations to ensure effective service in the event of an earthquake.



# NOISE ELEMENT



## NOISE ELEMENT

### INTRODUCTION

People's well-being depends on their surroundings in many ways. One of these ways is the noise level which exists around places of work and residential areas. The reliance of our society on machines and the density of typical urban development can create situations which are so noisy that extended exposure can impair a person's hearing and mental health. Noise control, therefore, becomes a public responsibility.

Transportation systems and industry are the major sources of loud, sustained noise which could be harmful to people in nearby homes, schools, hospitals and other places where quiet is needed. Clearly, consideration of noise levels will influence major land use and zoning decisions, as well as transportation and circulation plans, making noise control a necessary element in the comprehensive plan.

The major sources of existing noise are:

- Sources of aircraft noise.
- Noise produced by the transportation system (automobiles and motorcycles, trucks and buses, trains and emergency vehicles and also the freeway systems).
- Excessive noise in residential areas (noise problems in apartments, noise produced by school playgrounds and parks and pet noise).
- Industrial and commercial noise.

### BACKGROUND

Noise levels are measured in decibels and are grouped in terms of their ability to interfere with people or cause harm. Normal levels for different activities, ranging from sleep to loud play, have been established. Using these levels, norms have been developed for places of work and residential areas. The state of California has used these studies to develop noise insulation standards for residential buildings of various types. These standards are designed to ensure that homes and apartments in noisy areas are adequately protected from the intrusion of noise.



Carson's residential neighborhoods, on the whole, are remote from noisy areas. Major sources of noise are the freeways, major arterial streets and railroads. Compton's airport does not generate a significant high level of noise, but there is some intrusion of noise from the airport at Long Beach. If the volume of air traffic at Long Beach should increase, it could become a significant problem for residential areas on the east side of the City.

Two noise maps of the City were incorporated in the original Noise Element, using contours to indicate areas of substantial noise. The first map shows the current noise configurations. The second map shows expectations for 1990, based on anticipated increases in volume of traffic on the Artesia Freeway and Del Amo Boulevard. Areas rated as no more than 65 dB are suitable for residential use. Multi-family buildings located in areas of 60 dB and higher are required by state law to include acoustical analysis as part of the project design showing that interior noise levels will not exceed 45 dB. These ratings are from the Community Noise Equivalent Level System adopted by the state of California. They consider both the decibel levels of various noises and the time span over which they are heard. The norms include a range for different hours of the day for residential areas, permitting less noise during normal sleeping hours.

A small number of noise-generating industrial sites adjacent to residential areas are located in Carson, but they are quite isolated and do not produce loud, continuous noise. Their activities produce noises above the general level of their surroundings though few exceed the 65 dB norm for residential areas.

#### Noise Control Policy

Carson's noise control policy is primarily directed at maintaining current noise levels as they are. A community noise inventory found few residential areas in which the noise levels are unacceptable. A specific, long-range goal is the reduction of freeway noise in residential areas, but the cost and complexity of current technology are limiting factors.



The overall goals and programs are:

#### GOALS AND PROGRAMS

1. Provide sufficient information concerning the community noise environment so that noise may be effectively considered in the land use planning process.
2. Develop strategies for abatement of excessive noise exposures to citizens in the community. Mitigating measures should include re-zoning, as necessary and appropriate, to avoid incompatible land uses.
3. Protect those existing regions of the City for which noise environments are deemed acceptable and also those locations throughout the City deemed "noise sensitive."
4. Establish the community noise environment in the form of noise contours for local compliance with the State Noise Insulation Standards. These standards require specified levels of outdoor to indoor noise reduction for new multi-family residential construction in areas where the outdoor noise exposure may be excessive.
5. Encourage intergovernmental coordination to abate noise.
6. Enforce current state and local noise regulations to reduce the impact of noise from all sources, such as motor vehicles, aircraft, home appliances and railroad activity.
7. Reduce the impact of construction and industrial noises by adopting noise standards governing all construction equipment, as necessary.
8. Promote increased public awareness concerning the effects of noise and ways they can assist in reducing noise.

#### Noise Control Plan

Most noise control is carried out indirectly through thoughtful land use planning. This entails separations of residential and other uses through effective zoning and provision of buffers. Site design also influences noises that infringe on surrounding areas. Monitoring noise levels and maintaining land use and building regulations to limit noise intrusion are principal mechanisms of noise control. The Community Noise Equivalent



Level (CNEL) System, as adopted and utilized in the Carson Noise Element, will be the basis for other regulations. Noise control is an intergovernmental responsibility since noises readily cross over territorial boundaries. This is reflected in Carson's Noise Control Plan. Some of the specific activities include:

- Systematic noise surveys of the City shall be periodically conducted.
- The City shall develop acceptable noise standards consistent with health and quality-of-life goals and employ effective techniques of noise abatement through such means as the Building Code, Subdivision Ordinance and Zoning Ordinance.
- The City shall develop strategies for noise reduction where noise-impacted areas exist, and seek rigorous enforcement where otherwise preempted by other governmental agencies.
- A mechanism to assure coordination of all governmental jurisdiction in the field of noise control and abatement should be developed by the City.
- A national uniform sound certification program of published sound ratings for various types of equipment that are sources of noise shall be encouraged.
- The Sheriff's Department will enforce City, state and federal noise laws for mobile sources and complaints in residential zones.
- The Building and Safety Division of the Community Development Department will enforce state and local noise control regulations and Building Code regulations regarding noise control.
- The Planning Division of the Community Development Department shall review potential noise impacts on new developments which require environmental assessments and, in some cases, environmental impact reports.
- The county of Los Angeles Department of Animal Care and Control will continue the abatement of annoyance caused by barking dogs.



- Noise criteria shall be established for all applications involving variances and/or conditional use permits for commercial or industrial facilities.

### Summary

The Noise Element was originally approved by the City Council with the adoption of Resolution No. 77-247 on November 21, 1977. The updated information contained in this new document is intended to supplement the original document which is still valid.



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